MOVEMENT OF MULTI-ENZYMATIC NANOASSEMBLIES ON RECOGNITION LANDSCAPES

ABSTRACT OF THE DISCLOSURE

A macromolecular assembly has a body and at least four catalytic leg units having nucleic acids and is adapted to travel across a layer of oligonucleotide fuel substrate molecules by having each leg unit recognize and bind to a fuel substrate, cleave the fuel substrate and search for a new fuel substrate, said leg units alternately binding and cleaving out of phase to keep at least one leg unit bound to a fuel substrate. The fuel molecules may be arranged to provide a gradient, whereby the assembly travels along the gradient.